

BMP #17 - Gradient Terracing

Targeted Pollutants	
<input checked="" type="radio"/>	Sediment
<input type="radio"/>	Phosphorus
<input type="radio"/>	Trace metals
<input type="radio"/>	Bacteria
<input type="radio"/>	Petroleum hydrocarbons

Physical Limits	
Drainage area	<u>10 ac</u>
Max slope	<u>50%</u>
Min bedrock depth	<u>6 ft</u>
Min water table	<u>8 ft</u>
SCS soil type	<u>BCD</u>
Freeze/Thaw	<u>good</u>
Drainage/Flood control	<u>Yes</u>

DESCRIPTION

Gradient terracing is a term used to describe an earth embankment or ridge-and-channel arrangement constructed along the face of a slope at regular intervals. Gradient terraces are constructed at a positive grade. They reduce erosion damage by capturing surface runoff and directing it to a stable outlet at a speed that minimizes erosion.

APPLICATIONS

Gradient terraces are usually limited to use on long, steep slopes that have a water erosion problem or where it is anticipated that water erosion will be a problem. They are used for reducing runoff velocity and increasing the distance of overland runoff flow. They hold moisture better than do smooth slopes, and they minimize sediment loading of surface runoff.

LIMITATIONS

Gradient terraces should not be constructed on excessively steep slopes or in areas with sandy or rocky soils. They will be effective only where suitable runoff outlets will be available. Gradient terraces may significantly increase cut and fill costs and cause sloughing if too much water infiltrates the soil.

DESIGN PARAMETERS

Gradient terraces should be designed and installed according to a plan determined by an engineering survey and layout. It is important that gradient terraces are designed with adequate outlets, such as a grassed waterway, vegetated area, or tile outlet. In all cases, the outlet should direct the runoff from the terrace system to a point where the outflow will not cause erosion or other damage. Vegetative cover should be used in the outlet where possible. The design elevation of the water surface of the terrace should not be lower than that at the junction of the outlet area when both are operating at design flow. Terraces can be constructed with linings to carry water to the outlet and can be used with a dike or similar measure above the terrace to divert runoff from reaching the terraced slope.

CONSTRUCTION GUIDELINES

Construction of gradient terraces should be completed using equipment that is capable of meeting the specification established in the construction plans.

MAINTENANCE

Inspect the gradient terraces regularly during project construction and inspect them after any major storm. If used as a permanent BMP, inspect at least once a year after project completion and after major storms. Evaluate whether the terrace is functioning effectively as a runoff collection and diversion device and note whether other stabilization measures (including vegetation) are performing effectively. Take prompt action as needed to ensure proper drainage and slope stability.

